

100	PRIMARY CELL DEPOLARIZATION	134	..With battery or cell condition monitoring (e.g., for protection from overcharging, heating, etc.)
101	WIND, SOLAR, THERMAL, OR FUEL-CELL SOURCE		
102	.With shuntless charging source control	135	.Regulated discharging
103	ONE CELL OR BATTERY CHARGES ANOTHER	136	..With battery or cell condition monitoring (e.g., for protection from overcharging, heating, etc.)
104	.Vehicle battery charging		
105	..Employing "jumper" cable		
106	MEANS TO IDENTIFY CELL OR BATTERY TYPE	137	BATTERY OR CELL CHARGING
107	CELL OR BATTERY CHARGER STRUCTURE	138	.Plural charging sources
108	.Charger inductively coupled to cell or battery	139	.Pulsed
109	.Charging station for electrically powered vehicle	140	..With DC-DC converter (e.g., flyback supply, etc.)
110	.For diverse sizes of cells, batteries, or battery packs	141	..Pulse modulation
111	.Having plug for A-C receptacle	142	...Phase controlled
112	.For battery pack	143With voltage compensation
113	..With charger stand or base adapted to hold battery pack	144And temperature compensation
114	.For handheld device	145	...Pulse-width modulation
115	..With charger stand or base	146	..Hysteresis type (e.g., antichattering, etc.)
116	SERIALLY CONNECTED BATTERIES OR CELLS	147	.Gas controlled
117	.Switchable to parallel connection	148	.With peak detection of current or voltage (e.g., delta-V or delta-I utilized, etc.)
118	.With discharge of cells or batteries	149	.With detection of current or voltage integral (e.g., total charge, etc.)
119	.With individual charging of plural batteries or cells	150	.With thermal condition detection
120	.Having variable number of cells or batteries in series	151	..Detection of current or voltage differential (e.g., slope, etc.)
121	..Switchable cells (e.g., for voltage regulation, etc.)	152	..Detection of current or voltage amplitude
122	..Bypassable battery cell	153	...Temperature compensation
123	.With generator charging source	154	..Thermal switch (e.g., thermostat, bimetallic switch, etc.)
124	SEQUENTIAL CHARGING OR DISCHARGING OF BATTERIES OR CELLS	155	.Time control
125	DIVERSE CHARGING OR DISCHARGING RATES FOR PLURAL BATTERIES	156	..Detection of current or voltage differential (e.g., slope, etc.)
126	PARALLEL CONNECTED BATTERIES	157	..Detection of current or voltage amplitude
127	BATTERY OR CELL DISCHARGING	158	...Having solid-state control device
128	.With charging	159	...Detection of current and voltage amplitude
129	..Pulsed discharge		
130	..Cycling (e.g., discharge/charge cycle, etc.)	160	.Multi-rate charging (e.g., plural charge rates before a maintenance charge, etc.)
131	...Deep discharge (e.g., conditioning, etc.)	161	.With detection of current or voltage differential (e.g., slope, etc.)
132	...With state-of-charge detection		
133	...Time control		

- 162 .With detection of current or voltage amplitude
- 163 ..Having solid-state control device
- 164 ...Detection of current and voltage amplitude
- 165 .With current sensing to detect proper battery connection (e.g., polarity, ripple, reverse current, etc.)
- 166 **CAPACITOR CHARGING OR DISCHARGING**
- 167 .For large capacitance (e.g., "super" capacitor, memory backup capacitor, etc.)
- FOR 109 ..Charging source and/or circuit controlled by discharging circuit (320/10)
- FOR 110 ...Starting and/or stopping of battery charging (320/11)
- FOR 111 ...Charging generator control (320/12)
- FOR 112 ..Discharging circuit regulation (320/13)
- FOR 113 ..Alternately charging and discharging (320/14)
- FOR 114 .Plural, diversely treated, batteries (320/15)
- FOR 115 ..Series-parallel connections thereof (320/16)
- FOR 116 ..Series-connected batteries (320/17)
- FOR 117 ...Variable number in series (320/18)
- FOR 118 ..Periodic or intermittent charging or discharging (320/19)
- FOR 119 .High-rate, short-time charging systems (320/20)
- FOR 120 .Periodic or intermittent charging or discharging (320/21)
- FOR 121 .Plural rates of charging or discharging (320/22)
- FOR 122 ..Decreasing rates of charging (320/23)
- FOR 123 ...Three or more rates (320/24)
- FOR 124 .With polarity control (320/25)
- FOR 125 ..By means of reversing switches (320/26)
- FOR 126 .Combined control of source and charging circuit (320/27)
- FOR 127 ..Including charging circuit-making and/or breaking (320/28)
- FOR 128 .Combined circuit regulation and circuit-making and/or breaking (320/29)
- FOR 129 .Control responsive to predetermined conditions (320/30)
- FOR 130 ..Plural, diverse conditions and/or with time-delay means (320/31)
- FOR 131 ...Including voltage and current magnitudes (320/32)
- FOR 132 ...For battery circuit-making and/or breaking (320/33)

FOREIGN ART COLLECTIONS**FOR 000 CLASS-RELATED FOREIGN DOCUMENTS**

Any foreign patents or non-patent literature from subclasses that have been reclassified have been transferred directly to FOR Collections listed below. These Collections contain ONLY foreign patents or non-patent literature. The parenthetical references in the Collection titles refer to the abolished subclasses from which these Collections were derived.

FOR 100 CONDENSER CHARGING AND/OR DISCHARGING (320/1)**FOR 101 BATTERY CHARGING AND/OR DISCHARGING (320/2)**

- FOR 102 .Including dry cells or primary batteries (320/3)
- FOR 103 .."Recharging", depolarizing and/or reconditioning (320/4)
- FOR 104 .Combined charging and discharging (320/5)
- FOR 105 ..Plural, diversely treated batteries (320/6)
- FOR 106 ...Series-parallel connections thereof (320/7)
- FOR 107 ...Transposition between charging and discharging circuits (320/8)
- FOR 108 ..Combined regulation of charging source or circuit and discharging circuit (320/9)

FOR 133 ...For battery circuit-making and/or breaking (320/34)
 FOR 134 ..Thermal condition (320/35)
 FOR 135 ...For battery circuit-making and/or breaking (320/36)
 FOR 136 ..Instant of, or period of time (320/37)
 FOR 137 ...For battery circuit-making and/or breaking (320/38)
 FOR 138 ..Voltage or current magnitude (320/39)
 FOR 139 ...For battery circuit-making and/or breaking (320/40)
 FOR 140 ..Speed or centrifugal forces (320/41)
 FOR 141 ...For battery circuit-making and/or breaking (320/42)
 FOR 142 ..Condition of battery charge (320/43)
 FOR 143 ...Control by ampere-hour or watt-hour type of device (320/44)
 FOR 144 ...For battery circuit-making and/or breaking (320/45)
 FOR 145 ...Control by gas pressure-responsive means (320/46)
 FOR 146 ..For battery circuit-making and/or breaking (320/47)
 FOR 147 ..With indicating, signaling and/or testing means (320/48)
 FOR 148 ..Battery circuit control (320/49)
 FOR 149 ..With bucking and/or boosting e.m.f. in charging circuit (320/50)
 FOR 150 ..By impedance in charging or discharging circuit (320/51)
 FOR 151 ...Pressure-responsive type of impedance (320/52)
 FOR 152 ..Unidirectionally conductive devices in battery circuit (320/53)
 FOR 153 ..Battery circuit-making and/or breaking (320/54)
 FOR 154 ...Plural circuit makers and/or breakers (320/55)
 FOR 155 ..Plural, diverse or diversely treated sources of supply for charging (320/56)
 FOR 156 ..Rectifying systems for battery charging (320/57)
 FOR 157 ..Dynamolectric-type rectifier (320/58)
 FOR 158 ..Unidirectionally conductive-type rectifier (320/59)

FOR 159 ...Space-discharge devices (320/60)
 FOR 160 ..Generation systems for battery charging (320/61)
 FOR 161 ..Physical starting and/or stopping of generator (320/62)
 FOR 162 ...Generator used as starting means (320/63)
 FOR 163 ..Generator field-winding circuit control (320/64)
 FOR 164 ...Plural, diversely treated field windings (320/65)
 FOR 165 ...Differentially related (320/66)
 FOR 166 ...Auxiliary source or field circuit e.m.f. (320/67)
 FOR 167 ...Field-winding circuit impedance (320/68)
 FOR 168 ...Step short-circuited type (320/69)
 FOR 169 ...Pressure-responsive type of impedance (320/70)
 FOR 170 ..Armature or generating circuit shorted or grounded (320/71)
 FOR 171 ..Generator structure control (320/72)

DIGESTS

DIG 10 **NONBATTERY LOAD CONTROLS CHARGING**
 DIG 11 **PRIORITIZED SUPPLY OF POWER OR POWER SUPPLY COMPENSATION**
 DIG 12 **PRECHARGING ANALYSIS (E.G., DETERMINING PRESENCE OF BATTERY, ETC.)**
 DIG 13 **FAULT DETECTION**
 DIG 14 **BATTERY ACTS AS BUFFER**
 DIG 15 **POLARITY CONTROL**
 DIG 16 **REMOVAL OF MEMORY EFFECT IN BATTERIES**
 DIG 17 **SENSING OF "GASSING" VOLTAGE**
 DIG 18 **INDICATOR OR DISPLAY**
 DIG 19 ..Charger status (e.g., voltmeter, etc.)
 DIG 20 ..Polarity
 DIG 21 ..State of charge of battery
 DIG 22 **LINE IMPEDANCE (E.G., RESISTOR, ETC.)**
 DIG 23 ..Capacitor
 DIG 24 ..Inductor
 DIG 25 **OPTICAL COUPLER**
 DIG 26 **BUTTON OR HEARING AID TYPE**

- DIG 27 TRANSFORMERLESS
- DIG 28 REGULATING TRANSFORMER (E.G.,
HIGH LEAKAGE, FERRO-RESONANT,
ETC.)
- DIG 29 TRANSFORMER HAVING PLURAL
SECONDARIES
- DIG 30 PLURAL TRANSFORMERS
- DIG 31 PLURAL RECTIFIER SYSTEMS
- DIG 32 VOLTAGE DIVIDER HAVING DIVERSE
ELEMENTS OTHER THAN MERELY
PLURAL RESISTORS
- DIG 33 AIRCRAFT OR SPACECRAFT
APPLICATION
- DIG 34 ROBOT, HYBRID, RECREATIONAL OR
EMERGENCY VEHICLE
- DIG 35 HOME POWER STATION
- DIG 36 DISTRIBUTION SYSTEM (E.G.,
RAILROAD LIGHTING, ETC.)